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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,324	12/18/2001	Koji Hataya	IIDAP23.001AUS	8155

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EXAMINER


CHANEY, CAROL DIANE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,324	HATAYA, KOJI	
	Examiner	Art Unit	
Carol Chaney	1745		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 3-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 3-13 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 22 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hoshi et al., US Patent 6,299,653.

Hoshi disclose lithium battery hybrid electrolytes which comprise a polymer matrix and a plurality of cells dispersed in the polymer matrix, wherein the polymer matrix contains a crosslinked polymer segment and has a gel content in the range of from 20 to 75% and wherein the polymer matrix is impregnated and swelled with an electrolytic liquid. (column4, lines 45-52.) The electrolytic liquid is present not only in the polymer matrix but also in the plurality of cells. (Column 10, lines 32-40.) Thus, the hybrid electrolyte disclosed by Hoshi et al. contains a gel phase and a liquid phase. The resulting gel/liquid two phase hybrid electrolyte will be identical to the electrolyte claimed by the applicant, even though the methods used to form the electrolytes may be slightly different. Alternatively, the electrolyte disclosed by applicants would have been obvious to one of ordinary skill in the art based upon the disclosure of Hoshi et al.

Claims 1, 3, 5-7, 9-12, 14, and 16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Amano et al., US Patent 6,235,433 essentially for reasons of record.

Amano et al. disclose secondary batteries which include a gel electrolyte comprising a matrix polymer and an electrolyte solution in the matrix polymer. The

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electrolyte is described as "a matrix polymer and an electrolyte solution...included in the polymer matrix." The electrolyte solution is described as an ionic compound dissolved in a nonaqueous organic solvent. (Column 3, lines 24-36.) The electrolyte solution is thus liquid, since a nonaqueous organic solvent is understood to be liquid. "An electrolyte solution included in the polymer matrix" describes a polymer matrix phase and liquid nonaqueous electrolyte solution phase. Thus Amano discloses a two phase system.

The polymer gel electrolyte is a cross-linked high molecular network formed by mixing

A) a low-molecular weight compound containing at least two polymerizable functional groups

B) a second low-molecular weight compound having a polymerizable functional group and a carbonyl, amido or oxyalkylene group, and

(C) a vinylidene fluoride polymer

with a solution of an electrolyte salt dissolved in a nonaqueous organic solvent, and crosslinking the solution. In a preferred embodiment, the low molecular weight compound containing at least two polymerizable functional groups is trimethylolpropane trimethacrylate and the organic solvent is a propylene carbonate/ethylene carbonate mixture. (See column 11, Example 1.)

Claim Rejections - 35 USC § 103

Claims 4, 8, 13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano et al. for reasons of record.

With regards to claim 4, as shown by the above discussion, Amano et al. disclose applicants' invention essentially as claimed, with the exception that Amano et al. do not specifically recite an electrolyte solution phase having a size of 20 microns or less. Methods of adjusting microstructures of materials, based upon factors such as time, temperature, reactant concentrations are well-known in the art. Based upon the disclosure of Amano et al., it would be within the skill of the artisan could adjust the sizes of the phases of the electrolyte composition.

With regards to claims 6, 13 and 21, As discussed above, Amano et al. disclose applicants' invention essentially as claimed, with the exception that Amano et al. do not specifically recite ethylene dimethacrylate as the low molecular weigh compound functioning as a crosslinking agent. However, Amano et al. indicate the compound with two polymerizable functional groups used in their invention "is not particularly restricted" and examples of diacrylates and dimethacrylates are provided. (See column 4, lines 53-63 and example 1). Thus, applicants' invention as a whole would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would recognize ethylene dimethacrylate as an example of a type of compound with two polymerizable functional groups disclosed by Amano et al.

Response to Arguments

Applicant's arguments filed 31 December 20004 have been fully considered but they are not persuasive.

Applicants contend Amano does not anticipate the invention recited in Claim 3 as amended because Amano fails to disclose a method of producing an electrolyte such that "a first portion of the electrolyte solution forms a gel with the crosslinked polymer and a second portion of the electrolyte that forms a separated phase of liquid electrolyte solution. Applicants further assert that a solution described as "homogeneous" could not be a two phase mixture.

However, the meaning of the term "homogeneous" will depend upon the scale of view. For example, a checkerboard when view as a whole, would be a homogeneous array of black and red squares, even though there are two distinct types of squares. Likewise, an electrolyte having uniformly dispersed phases would be considered homogeneous. For this reason, applicants' arguments are not considered persuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not


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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (571) 272-1284. The examiner can normally be reached on Mon - Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Carol Chaney
Primary Examiner
Art Unit 1745

cc